CLAIMS

1. Digital transmission method of the error-correcting coding type, comprising, before a step of transmitting on a channel, a coding procedure for generating, from a source information item, a coded information item comprising at least one redundant information item and, after the said step of transmitting on the said channel, a decoding procedure for obtaining, from a received information item to be decoded (50), an estimate of the said source information item with correction of transmission errors based on the said at least one redundant information item, the said coding procedure comprising a plurality of elementary coding steps associated with a plurality of interleaving steps and acting in parallel or in series, the said decoding procedure being iterative and comprising, for each iteration, a plurality of elementary decoding steps (51, 52, 53 ; 83) which correspond to the said plurality of elementary coding steps with association with a plurality of adapted interleaving and de-interleaving steps, each of the said elementary decoding steps (51, 52, 53 ; 83) generating at least one weighted output information item which can be transmitted to one or more other elementary decoding steps, the said method being characterised in that it comprises a characteristic quantity determination step (54 ; 86) for calculating at least one characteristic quantity from a set of weighted output information items generated by at least one elementary decoding step (51, 52, 53 ; 83), and a decoded information quality parameter determination step (55 ; 85) for determining, from the said at least one characteristic quantity and at least one configuration parameter, a decoded information quality parameter associated with a set of decoded information items corresponding to the said set of weighted output information items.

2. Digital transmission method of the error-correcting coding type according to Claim 1, characterised in that the said decoded information quality parameter is used after the said decoding procedure.

3. Digital transmission method of the error-correcting coding type according to Claim 1, characterised in that the said decoded information quality parameter is used during the said decoding procedure.

4. Digital transmission method of the error-correcting coding type according to any one of the preceding claims, characterised in that each of the said elementary decoding steps uses part of the said received information, which corresponds to a redundant information item associated with the corresponding elementary coding step, for generating an output information item comprising an extrinsic information item

which can be transmitted to one or more other elementary decoding steps, at least one extrinsic information item obtained during one iteration being transmitted to another iteration, and the said characteristic quantity determination step (86) calculating the said at least one characteristic quantity during an elementary decoding step (83) from a set of extrinsic information items at the output of the said elementary decoding step (83).

5. Digital transmission method of the error-correcting coding type according to any one of the preceding claims, characterised in that the said characteristic quantity is a statistical quantity.

6. Digital transmission method of the error-correcting coding type according to Claim 4, characterised in that the said characteristic quantity is the mean of the absolute value of the extrinsic information calculated on the said set of extrinsic information items.

7. Digital transmission method of the error-correcting coding type according to Claim 4, characterised in that the said characteristic quantity is a statistical quantity characterising the said set of extrinsic information items.

8. Digital transmission method of the error-correcting coding type according to any one of the preceding claims, characterised in that the said quality parameter determination step (55) determines the said decoded information quality parameter from a characteristic quantity calculated, by the said characteristic quantity determination step (54 ; 86) during an elementary decoding step (53) from a set of weighted output information items of the said elementary decoding step (53) and other characteristic quantities calculated during previous elementary decoding steps (51, 52) from sets of weighted output information items corresponding to the said set of weighted output information items of the said elementary decoding step (53), and at least one configuration parameter, the said decoded information quality parameter being associated with a set of decoded information items corresponding to the said set of weighted output information items of the said elementary decoding step (53).

9. Digital transmission method of the error-correcting coding type according to Claim 8, characterised in that the said quality parameter determination step (55) determines the said quality parameter from characteristic quantities calculated during elementary decoding steps corresponding to the last elementary decoding steps (51, 52, 53) in the said decoding procedure.

10. Digital transmission method of the error-correcting coding type according to Claim 8, characterised in that the said quality determination step (55) determines the said quality parameter from a single characteristic quantity calculated during the last elementary decoding step (53) in the said decoding procedure.

11. Digital transmission method of the error-correcting coding type according to any one of the preceding claims, characterised in that the said output information quality parameter is an integer number representing the probable number of errors which exist in the said set of decoded information items.

12. Digital transmission method of the error-correcting coding type according to any one of the preceding claims, characterised in that the said output information quality parameter is a scalar used as a weighting factor.

13. Digital transmission method of the error-correcting coding type according to any one of the preceding claims, characterised in that a configuration parameter is a parameter characterising the decoding conditions.

14. Digital transmission method of the error-correcting coding type according to any one of the preceding claims, characterised in that a configuration parameter is a parameter characterising the transmission conditions.

15. Digital transmission method of the error-correcting coding type according to any one of the preceding claims, characterised in that a configuration parameter is the signal to noise ratio.

16. Digital transmission method of the error-correcting coding type according to any one of the preceding claims, characterised in that the said information quality parameter determination step (55 ; 85) uses a predetermined algorithm allowing calculation of the said information quality parameter as a function of the said configuration parameters and one of more of the said characteristic quantities.

17. Digital transmission method of the error-correcting coding type according to any one of the preceding claims, characterised in that the said information quality parameter determination step (55 ; 85) uses a predetermined reference table to select an information quality parameter as a function of the said configuration parameters and one of more of the said characteristic quantities.

18. Digital transmission method of the error-correcting coding type according to any one of the preceding claims, characterised in that, the said received information (50) being processed by means of N-bit decoding sequences, the said set of decoded information items is a sequence of binary information items containing N symbols.

19. Digital transmission method of the error-correcting coding type according to any one of the preceding claims, characterised in that, the said received information (50) being processed by means of decoding sequences, the said set of decoded information items is a sequence of binary information items representing a fraction of a decoding sequence.

20. Digital transmission method of the error-correcting coding type according to any one of the preceding claims, characterised in that the said elementary decoding steps (51, 52, 53 ; 86) have inputs and outputs weighted in terms of probabilities, likelihood ratios, or log likelihood ratios.

21. Digital transmission method of the error-correcting coding type according to any one of the preceding claims, characterised in that the said coding procedure comprises at least one puncturing step and the said decoding procedure comprises at least one corresponding de-puncturing step.

22. Digital transmission method of the error-correcting coding type according to any one of the preceding claims, characterised in that, in a combination of transmission methods using a number of decoding procedures (63) associated with one and the same coding procedure (60), decoded information quality parameters obtained respectively at the end of each of the decoding procedures form weighting factors for the corresponding sets of decoded information items with a view to a weighted combination (64) of these sets.

23. Digital transmission method of the error-correcting coding type according to any one of the preceding claims, characterised in that, in a transmission method comprising, furthermore, a joint detection step (70), the said decoded information quality parameter is used as a control parameter of the said joint detection step (70).